The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSE I. ARNO

Appeal No. 2004-1937
Application No. 09/086,033

ON BRIEF

Before GARRIS, WALTZ, and DELMENDO, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 1, 3, 5, 9-11, 13, 21-25, 27 and 28. These are all of the claims remaining in the application.

The subject matter on appeal relates to a process or method for abating fluorine gas and gaseous fluorine-containing compounds from a gas stream by scrubbing the gas stream with

water containing sodium thiosulfate or potassium iodide in an amount to maintain a pH in the aqueous medium in the water scrubber in a range of about 4.5 to about 6.5. This appealed subject matter is adequately illustrated by independent claims 1 and 21 which read as follows:

1. A process for abating fluorine gas and gaseous fluorine-containing compounds in a semiconductor manufacturing process effluent comprising a multicomponent gas stream containing same, said process comprising scrubbing the gas stream with an aqueous medium in a water scrubber unit, to yield an effluent of reduced fluorine content, and discharging the effluent of reduced fluorine content from the water scrubber unit, and further comprising injecting into the water scrubber unit a reducing agent comprising at least one compound selected from the group consisting of sodium thiosulfate and potassium iodide, in an amount and at a rate in correspondence to concentration of fluorine gas and gaseous fluorine-containing compounds in the semiconductor manufacturing process effluent and to maintain a pH in the aqueous medium in the water scrubber unit in a range of about 4.5 to about 6.5, to substantially completely remove said fluorine gas and gaseous fluorine-containing compounds from said gas stream therein while maintaining OF_2 concentrations below detection limits.

21. A process for abating fluorine gas in a gas stream containing same, comprising wet scrubbing the gas stream with water containing sodium thiosulfate in a water scrubber unit wherein said gas stream with water in the water scrubber unit is maintained at a pH level in a range of about 4.5 to about 6.5.

The prior art set forth below is relied upon by the examiner as evidence of obviousness:

Tessier et al. (Tessier)	4,757,127	Jul. 12, 1988
Koto et al. (Koto)	4,980,144	Dec. 25, 1990
Dorr et al. (Dorr)	5,030,428	Jul. 9, 1991
Tom	5,622,682	Apr. 22, 1997
Ohno et al. (Ohno)	5,710,351	Jan. 20, 1998

Holst et al. (Holst) 5,955,037 Sep. 21, 1999 (filed Dec. 31, 1996)

Mocella et al. (Mocella), "Options for Environmentally Impacted Perfluorinated Gases Used In Plasma Processing," 10th Symposium Plasma Etching, pp. 192-200 (1994).

The admitted prior art described on pages 2-4 of the subject specification.

All of the claims on appeal are rejected under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The here claimed subject matter which the examiner considers offensive to the written description requirement involves the limitation of maintaining a pH in the aqueous medium in the water scrubber unit in a range of about 4.5 to about 6.5 which is recited in each of the appealed independent claims.

Claims 1, 3, 5, 9-11, 13, 21, 24, 25 and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Koto and further in view of Ohno or Tessier, and claims 22 and 23 are correspondingly rejected over the aforementioned prior art and further in view of Tom and Mocella.

Finally, claim 28 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Koto and further in view of Holst or Dorr and further in view of Tessier or Ohno.

We refer to the brief and reply brief as well as to the answer for an exposition of the opposing viewpoints expressed by the appellant and by the examiner concerning the above noted rejections.

OPINION

For the reasons which follow, we will sustain the examiner's section 112, first paragraph, rejection of all appealed claims, but we cannot sustain any of the examiner's section 103 rejections.

In order to satisfy the written description requirement set forth in the first paragraph of 35 U.S.C. § 112, an applicant's original disclosure must convey with reasonable clarity to those skilled in the art that the applicant, as of the filing date sought, was in possession of the claimed invention. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991). By way of clarification, the aforementioned disclosure includes an applicant's drawing as well as his specification. This is because a drawing alone may under proper

circumstances provide a "written description" of the claimed invention as required by the first paragraph of section 112. Vas-Cath, Inc. v. Mahurkar, 935 F.2d at 1564, 19 USPQ2d at 1117-18.

According to the appellant, "Figure 4 clearly shows effective abatement of fluorine containing compounds and fluorine in a pH range from about 6.5 to 4.5" (brief, page 12). As correctly observed by the examiner, however, while this pH range is disclosed in Figure 4, such disclosure is not in the context of the conditions defined by the appellant's independent claims. In this regard, it is appropriate to emphasize that Figure 4 is based on Test 4 in Table 2 on specification page 13. Significantly, Test 4 does not involve use of either sodium thiosulfate or potassium iodide as required by the appealed independent claims.

For this reason alone, the appellant's original disclosure including that of Figure 4 would not convey with reasonable clarity to those skilled in the art that the appellant, as of the application filing date, was in possession of the here claimed invention wherein an aqueous medium containing sodium thiosulfate or potassium iodide is maintained at a pH range of from about 4.5 to about 6.5. It is even more apparent that this disclosure also

would not convey to artisans that the appellant was in possession on the application filing date of the independent claim feature wherein sodium thiosulfate or potassium iodide is injected into the water scrubber unit in an amount to maintain the aqueous medium in the scrubber unit at the aforenoted pH range. In short, the appellant's disclosure does not convey possession of the here claimed feature wherein the recited pH range is maintained in an aqueous medium which contains sodium thiosulfate or potassium iodide and certainly does not convey the here claimed feature of injecting sodium thiosulfate or potassium iodide in an amount to maintain the pH range.

For these reasons, we hereby sustain the examiner's section 112, first paragraph, rejection of all appealed claims for failing to satisfy the written description requirement of this paragraph.

With respect to each of his section 103 rejections, the examiner has reached a conclusion of obviousness concerning the pH range limitation which is recited in all of the appealed independent claims. On page 8 of the answer, the examiner expresses his obviousness position in the following manner:

> For the pH of the of the aqueous medium in the water scrubber, since such aqueous medium is used to absorb the acidic compounds, i.e., the fluorine or fluorine compounds from the semiconductor manufacturing

> process effluent gas, thus, [sic] it would have been obvious to one of ordinary skill in the art at the time of the invention was made [sic] to use a scrubbing solution with a pH high enough to absorb the acidic compounds because when the pH is low, the scrubbing solution would be saturated with acid compounds and could not absorb any more those acidic compounds.

Viewed by itself, the examiner's rationale is not without scientific merit. That is, it is reasonable to expect that an aqueous medium should have a high or caustic pH in order to effectively absorb compounds such as fluorine-containing compounds which have an acidic or low pH. The deficiency of this rationale is that it leads away from rather than to the appellant's claimed pH range. This is because the appealed claims require a pH range of about 4.5 to about 6.5 which is in the acidic or relatively low portion of the pH scale whereas the examiner's rationale would lead to a relatively high or caustic pH range (i.e., from greater than 7 to 14).

This defect in the examiner's obviousness conclusion taints each of his section 103 rejections. It follows that we cannot sustain any of the section 103 rejections advanced on this appeal.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Bradley R. Garris Administrative Patent Judge	)	
Thomas A. Waltz Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Romulo H. Delmendo Administrative Patent Judge	)	

BRG:tdl

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